said sugar is a 1,3-dioxolane compound capable of coupling with said silyated purine or silylated pyrimidine compound, and

said pyrimidin-1'-yl or purine-9'-yl base moiety is cytosin-1'-yl, thymin-1'-yl, 2'-amino-purin-9'-yl, adenin-9'-yl, guanin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2', 6'-diamino-purin-9'-yl, 7'-deazaadenin-9'-yl, 7-deaza-2'-amino-purin-9'-yl, 7'-deaza-8'-aza-2',6'-diamino-purin-9'-yl, 7'-deazaguanin-9'-yl, or 2' amino-6'-chloro-7'-deaza-purin-9'-yl, which in each case is unsubstituted or substituted by at least one of C_{1-3} alkyl, C_{1-3} alkenyl, halo, or NHR_3 wherein R_3 is H or C_{1-3}-alkyl.

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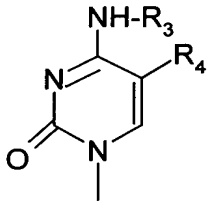
39. A method according to claim 38, wherein said Lewis acid is trimethylsilyl triflate.

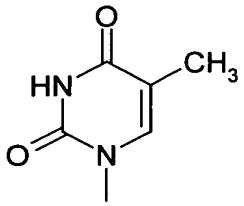
40. A method according to claim 38, wherein said pyrimidin-1'-yl or purine-9'-yl base moiety is cytosin-1'-yl, thymin-1'-yl, 2'-amino-purin-9'-yl, adenin-9'-yl, guanin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2', 6'-diamino-purin-9'-yl, 7'-deazaadenosin-9'-yl, 7-deaza-2'-amino-purin-9'-yl, 7'-deaza-8'-aza-2',6'-diamino-purin-9'-yl, 7'-deazaguanin-9'-yl, or 2' amino-6'-chloro-7'-deaza-purin-9'-yl, which in each case is unsubstituted or substituted by at least one of C_{1-3} alkyl, C_{1-3} alkenyl, F, I, or NHR_3, wherein R_3 is H or C_{1-3}-alkyl.

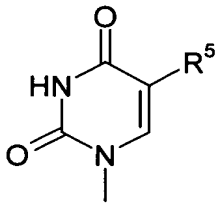
41. A method according to claim 38, wherein the pyrimidin-1-yl or purine-9-yl base moiety is cytosin-1'-yl, thymin-1'-yl, adenin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2',6'-diamino-purin-9'-yl, or 2'-amino-purin-9'-yl.

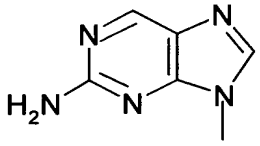
42. A method according to claim 38, wherein said 1,3-dioxolane compound is substituted in the 2-position by $ClCH_2$- or C_6H_5-COO-CH_2- and is substituted in the 4-position by ClC_6H_4-COO-.

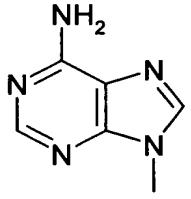
43. A method according to claim 38, wherein the pyrimidin-1-yl or purine-9-yl base moiety is selected from the following formulae:

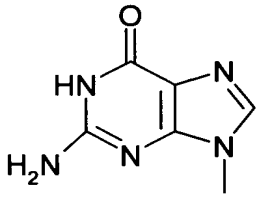


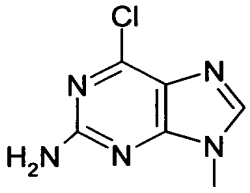


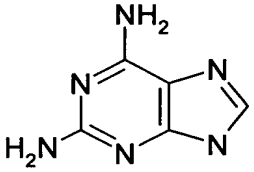












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wherein

R_3 is H or alkyl having 1 to 3 carbon atoms,

R_4 is H, alkyl or alkenyl having 1 to 3 carbon atoms, and

R_5 is alkyl or alkenyl having 1 to 3 carbon atoms, fluoro or iodo.

44. In a method of preparing a nucleoside compound comprising coupling a sugar with a silylated purine or silylated pyrimidine compound whereby said nucleoside compound has a sugar moiety with an attached pyrimidin-1'-yl or purine-9'-yl base moiety, the improvement wherein:

coupling is performed in the presence of a Lewis acid,

said sugar is a 1,3-dioxolane compound capable of coupling with said silylated purine or silylated pyrimidine compound, and

said silylated purine or pyrimidine compound is substituted one or more times by NHR_3, oxo, C_{1-3}-alkyl, C_{1-3}-alkenyl, Cl, F, or I, and R^3 is H or C_{1-3}-alkyl.

45. A method according to claim 44, wherein said Lewis acid is trimethylsilyl triflate.

46. In a method of preparing a nucleoside analogue comprising coupling a modified sugar with a silylated purine or silylated pyrimidine compound whereby said nucleoside analogue has a sugar modified moiety with an attached pyrimidin-1'-yl or purine-9'-yl base moiety, the improvement wherein:

coupling is performed in the presence of a Lewis acid,

said modified sugar is a 2,4-disubstituted-1,3-dioxolane compound having a protected methyl group at the C-2 position and a leaving group at the C-4 position, which is capable of coupling with said silyated purine or pyrimidine compound, and

said pyrimidin-1'-yl or purine-9'-yl base moiety is cytosin-1'-yl, thymin-1'-yl, 2'-amino-purin-9'-yl, adenin-9'-yl, guanin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2', 6'-diamino-purin-9'-yl, 7'-deazaadenin-9'-yl, 7-deaza-2'-amino-purin-9'-yl, 7'-deaza-8'-aza-2',6'-diamino-purin-9'-yl, 7'-deazaguanin-9'-yl, or 2' amino-6'-chloro-7'-deaza-purin-9'-yl, which in each case is unsubstituted or substituted by at least one of C_{1-3} alkyl, C_{1-3} alkenyl, halo, or NHR_3 wherein R_3 is H or C_{1-3}-alkyl,

47. In a method of preparing a nucleoside analogue comprising coupling a modified sugar with a silylated purine or pyrimidine compound whereby said nucleoside analogue has a modified sugar moiety with an attached pyrimidin-1'-yl or purine-9'-yl base moiety, the improvement wherein:

coupling is performed in the presence of a Lewis acid,

said modified sugar is a 2,4-disubstituted-1,3-dioxolane compound having a protected methyl group at the C-2 position and a leaving group at the C-4 position, which is capable of coupling with said silyated purine or pyrimidine compound, and

said silylated purine or pyrimidine compound is substituted one or more times by NHR_3, oxo, C_{1-3}-alkyl, C_{1-3}-alkenyl, Cl, F, or I, and R_3 is H or C_{1-3}-alkyl, and said silyated purine or pyrimidine compound contains at least one NHR_3 or oxo substituent.

48. In a method of preparing a nucleoside compound comprising coupling a sugar with a silylated purine or silylated pyrimidine compound whereby said nucleoside compound has a sugar moiety with an attached pyrimidin-1'-yl or purin-9'-yl base moiety, the improvement wherein

coupling is performed in the presence of a Lewis acid,

said sugar is a 1,3-oxathiolane compound capable of coupling with said silyated purine or silyated pyrimidine compound, and

said pyrimidin-1'-yl or purin-9'-yl base moiety is cytosin-1'-yl, adenin-9'-yl, thymin-1'-yl, guanin-9'-yl, uracil-1'-yl, inosin-1'-yl, 5'-aza-cytosin-1'-yl, 2'-amino-purin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2', 6'-diamino-purin-9'-yl, 7'-deazaadenin-9'-yl, 7-deaza-2'-amino-purin-9'-yl, 7'-deaza-8'-aza-2',6'-diamino-purin-9'-yl, 7'-deazaguanin-9'-yl, 2' amino-6'-chloro-7'-deaza-purin-9'-yl, which in each case is unsubstituted or substituted by at least one of NHR_3, C_{1-6} alkyl, Br, Cl, F, I or OH and R_3 is H or C_{1-6}-alkyl.

49. A method according to claim 48, wherein said Lewis acid is trimethylsilyl triflate.

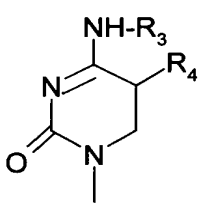
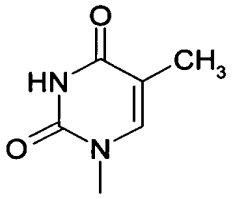
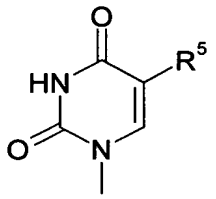
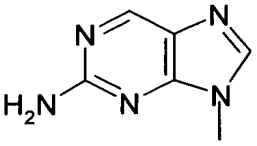
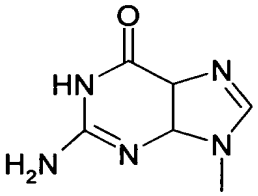
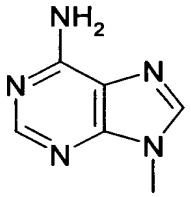
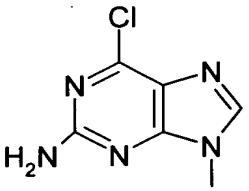
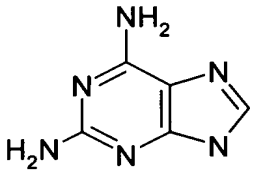
50.. A method according to claim 48, wherein the base moiety is substituted cytosin-1'-yl or substituted uracil-1'-yl.

51. A method according to claim 50, wherein the base moiety is substituted cytosin-1'-yl.

52. A method according to claim 50, wherein cytosin-1'-yl or uracil-1'-yl is substituted in the 5'-position.

53. A method according to claim 51, wherein cytosin-1'-yl is substituted in the 5'-position.

54. A method according to claim 48, wherein said base moiety is selected from the following formulae:

wherein

R_3 and R_4 are each, independently, H or C_{1-6} alkyl,

R_5 is H, C_{1-6} alkyl, bromine, chlorine, fluorine, or iodine, and

X and Y are each, independently, bromine, chlorine, fluorine, iodine, amino or hydroxy.

55. In a method of preparing a nucleoside compound comprising coupling a sugar with a silylated purine or silylated pyrimidine compound whereby said nucleoside compound has a sugar moiety with an attached pyrimidin-1'-yl or purin-9'-yl base moiety, the improvement wherein

coupling is performed in the presence of a Lewis acid,

said sugar is a 1,3-oxathiolane compound capable of coupling with said silyated purine or silyated pyrimidine compound, and

said pyrimidin-1'-yl or purin-9'-yl base moiety is substituted by 1 to3 of NHR_3, C_{1-6} alkyl, oxo, Br, Cl, F, I or OH, and R_3 is H or C_{1-6}-alkyl.

56. A method according to claim 55, wherein said Lewis acid is trimethylsilyl triflate.

57. A method according to claim 55, wherein the pyrimidin-1'-yl base moiety is substituted in the 2', 4' and 5' positions or the purin-9'-yl base moiety is substituted in the 2' position, 6' position or both.

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58. A method according to claim 55, wherein the base moiety is substituted pyrimidin-1'-yl.

59. A method according to claim 57, wherein the base moiety is substituted pyrimidin-1'-yl.

60. A method according to claim 55, wherein the base moiety is substituted purin-9'-yl.

61. A method according to claim 57, wherein the base moiety is substituted purin-9'-yl.

62. A method according to claim 58, wherein the base moiety is, substituted or unsubstituted, cytosin-1'-yl or uracil-1'-yl.

63. A method according to claim 62, wherein the base moiety is, substituted or unsubstituted, cytosin-1'-yl.

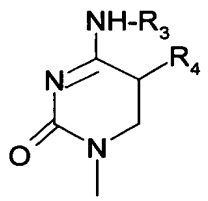
64. A method according to claim 58, wherein the base moiety is, substituted or unsubstituted, uracil-1'-yl.

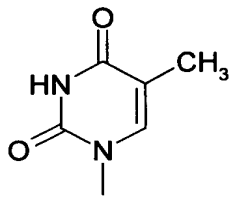
65. A method according to claim 58, wherein the base moiety is cytosin-1'-yl substituted in the 5'-position.

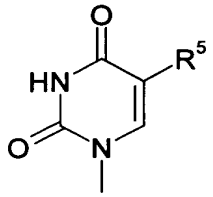
66. A method according to claim 59, wherein the base moiety is cytosin-1'-yl substituted in the 5'-position.

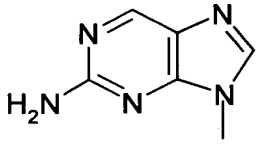
67. A method according to claim 48, wherein said 1,3-oxathiolane compound is substituted in the 2-position by $C_6H_5COO\text{-}CH_2$- and is substituted in the 5-position by C_2H_5O-.

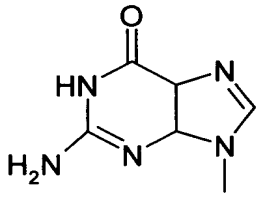
68. A method according to claim 55, wherein said base moiety is selected from the following formulae:

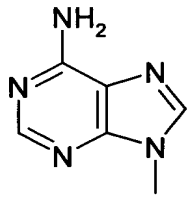


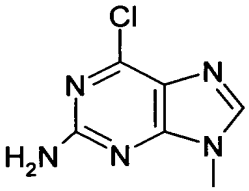


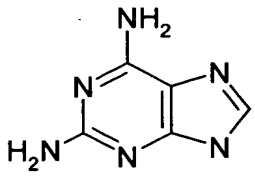












wherein

R_3 and R_4 are each, independently, H or C_{1-6} alkyl,

R_5 is H, C_{1-6} alkyl, bromine, chlorine, fluorine, or iodine, and

X and Y are each, independently, bromine, chlorine, fluorine, iodine, amino or hydroxy.

69. A method according to claim 48, further comprising converting the C-5 substituent to $HO-CH_2-$.

70. A method according to claim 55, further comprising converting the C-5 substituent to $HO-CH_2-$.

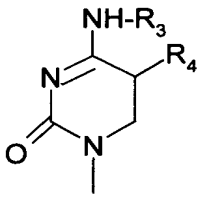
71. In a method of preparing a nucleoside analogue comprising coupling a modified sugar with a silylated compound whereby said nucleoside analogue has a modified sugar moiety with an attached pyrimidin-1'-yl base moiety or analogue thereof, or a purin-9'-yl base moiety or analogue thereof, the improvement wherein

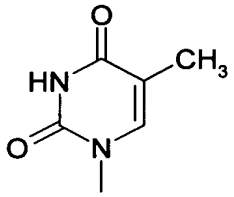
coupling is performed in the presence of a Lewis acid,

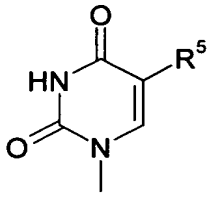
said modified sugar is a 2,5-disubstituted-1,3-oxathiolane compound having a protected methyl group at the C-2 position and a leaving group at the C-5 position, which is capable of coupling with said silyated compound, and

said pyrimidin-1'-yl base moiety or analogue thereof, or purin-9'-yl base moiety or analogue thereof is cytosin-1'-yl, adenin-9'-yl, thymin-1'-yl, guanin-9'-yl, uracil-1'-yl, inosin-1'-yl, 5'-aza-cytosin-1'-yl, 2'-amino-purin-9'-yl, 2'-amino-6'-chloro-purin-9'-yl, 2', 6'-diamino-purin-9'-yl, 7'-deazaadenin-9'-yl, 7-deaza-2'-amino-purin-9'-yl, 7'-deaza-8'-aza-2',6'-diamino-purin-9'-yl, 7'-deazaguanin-9'-yl, 2' amino-6'-chloro-7'-deaza-purin-9'-yl, which in each case is unsubstituted or substituted by at least one of NHR_3, C_{1-6} alkyl, Br, Cl, F, I or OH and R_3 is H or C_{1-6}-alkyl.

72. A method according to claim 71, wherein said base moiety is selected from the following formulae:







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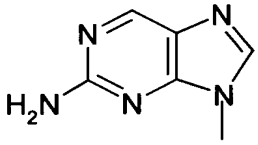
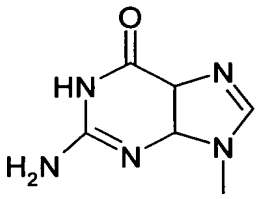
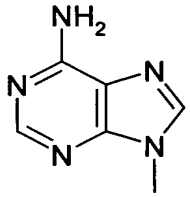
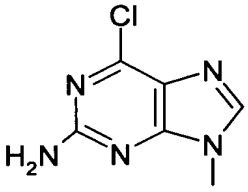
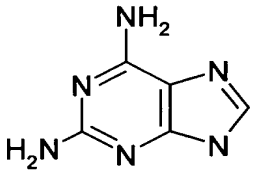










wherein

R_3 and R_4 are each, independently, H or C_{1-6} alkyl,

R_5 is H, C_{1-6} alkyl, bromine, chlorine, fluorine, or iodine, and

X and Y are each, independently, bromine, chlorine, fluorine, iodine, amino or hydroxy.

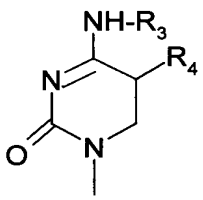
73. In a method of preparing a nucleoside analogue comprising coupling a modified sugar with a silylated purine or silylated pyrimidine compound whereby said nucleoside analogue has a modified sugar moiety with an attached pyrimidin-1'-yl or purin-9'-yl base moiety, the improvement wherein

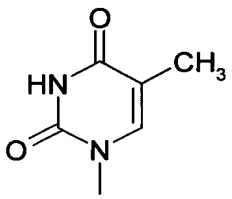
coupling is performed in the presence of a Lewis acid,

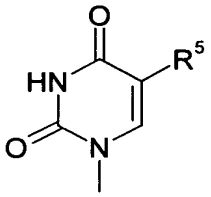
said modified sugar is a 2,5-disubstituted-1,3-oxathiolane compound having a protected methyl group at the C-2 position and a leaving group of the C-5 position and is capable of coupling with said silyated purine or silylated pyrimidine compound, and

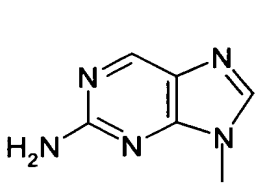
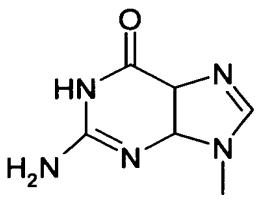
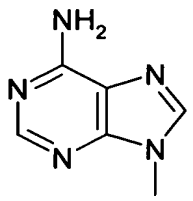
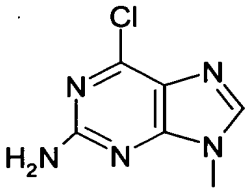
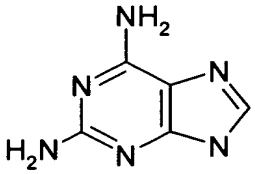
said silylated purine or pyrimidine compound is substituted by 1 to 3 of NHR_3, C_{1-6} alkyl, oxo, Br, Cl, F, I or OH, and R_3 is H or C_{1-6}-alkyl, and said silylated purine or pyrimidine compound contains at least one NHR_3 or oxo substituent.

74. A method according to claim 73, wherein said base moiety is selected from the following formulae:







wherein

R_3 and R_4 are each, independently, H or C_{1-6} alkyl,

R_5 is H, C_{1-6} alkyl, bromine, chlorine, fluorine, or iodine, and

X and Y are each, independently, bromine, chlorine, fluorine, iodine, amino or hydroxy.--